

10/588952

IAP11 Rec'd PCT/PTO 10 AUG 2006

**THE FOLLOWING ARE THE ENGLISH TRANSLATION
OF ANNEXES TO THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT (ARTICLE 34):**

Amended Sheets (Pages 30-33)

New claims:

1. A wallcovering assembly comprising
a base material (1) and at least one ceramic coating (2) comprising ceramic particles
selected from the oxides, nitrides, borides or carbides of the metals or semimetals
5 embedded in a matrix consisting of a silicon network linked together by Si-O-Si bridges,
wherein
one or more interlayers (3) are present between the base material (1) and the ceramic
layer (2), and
the ceramic interlayer (3) contains particles of an inorganic component which comprises
10 essentially at least one compound from at least one metal, at least one semimetal or at
least one mixed with at least one element of the 3rd to 7th main group that are bonded
by at least one inorganic adhesive to each other and to the layer present underneath the
ceramic interlayer (3).
- 15 2. A wallcovering assembly as per claim 1, characterized in that the base material is a
nonwoven, a woven, a formed-loop knit, a felt, a film, a paper, which paper can be
single- or multi-layered paper, or a wallpaper.
- 20 3. A wallcovering assembly as per claim 1 or 2, characterized in that the base material is a
sheetlike structure comprising predominantly cellulose fibers, polymeric fibers, glass
fibers, metal fibers or ceramic fibers, or is a polymeric film.
4. A wallcovering assembly according to at least one of claims 1 to 3, characterized in that
the silicon network comprises organic radicals which are bound to silicon.
- 25 5. A wallcovering assembly as per claim 4, characterized in that in each case two organic
radicals are bound together via covalent bonds.
- 30 6. A wallcovering assembly according to at least one of claims 1 to 5, characterized in that
the ceramic coating (2) comprises particles having an average particle size from 1 nm to
1 μ m for the elementary particles.

7. A wallcovering assembly according to at least one of claims 1 to 6, characterized in that the ceramic coating (2) comprises particles of oxides of the elements Al, Zr, Si, Ti, Ce or Fe.
- 5
8. A wallcovering assembly according to at least one of claims 1 to 7, characterized in that the ceramic coating (2) comprises POSS clusters or hydrophobicized silicas as particles.
9. A wallcovering assembly according to at least one of claims 1 to 8, characterized in that the ceramic coating (2) is less than 100 μm in thickness.
- 10
10. A wallcovering assembly according to any one of claims 1 to 9, characterized in that the ceramic coating (2) is transparent to electromagnetic radiation having a wavelength in the region of visible light.
- 15
11. A wallcovering assembly according to any of claims 1 to 10, characterized in that the ceramic interlayer (3) comprises particles of oxides selected from Al_2O_3 , ZrO_2 , TiO_2 and/or SiO_2 having an average particle size from 200 nm to 5 μm and a silicon network, the silicon of the network being bonded via oxygen atoms to the oxides of the ceramic coating, via organic radicals to the layer underneath the top layer and via at least one chain of carbon atoms to a further silicon.
- 20
12. A wallcovering assembly according to any one of claims 1 to 11, characterized in that there is an interlayer which contains one or more components selected from adhesives, adhesion promoters, binders, dyes and pigments.
- 25
13. A wallcovering assembly according to at least one of claims 1 to 12, characterized in that the wallcovering assembly is flexible and can be wound up into a roll.
14. A process for producing a wallcovering assembly as per any one of claims 1 to 13, characterized in that it comprises producing a final ceramic coating (2) by a suspension
- 30

comprising ceramic particles suspended in a polymeric sol produced by mixing at least one silane with an alcohol and an acid being applied to a base material (1) after application of one or more interlayers (3) and subsequently solidified, wherein the interlayer (3) is applied by applying and solidifying a suspension which comprises particles of an inorganic component suspended in a sol to the base material (1) or further interlayers (3) optionally present and subsequently solidifying the suspension on and optionally in the base material (1) or the further interlayer (3) optionally present, and

the suspension used for producing the interlayer (3) comprises at least one sol, which acts as an inorganic adhesive and comprises at least particles of an inorganic component which comprises essentially at least one compound of at least one metal, at least one semimetal or at least one mixed metal with at least one element of the 3rd to 7th main group.

15. A process according to claim 14, characterized in that oxides, carbides, nitrides or borides of metals or semimetals are used as ceramic particles.

16. A process according to claim 14 or 15, characterized in that the suspension is solidified by heating when the sol is based on tetraethoxysilane (TEOS), 3-glycidyloxytrimethoxysilane (GLYMO) and/or 3-glycidyloxytriethoxysilane (GLYEO) and/or 3-methacryloyloxypropyltrimethoxysilane (MEMO).

17. A process according to claim 16, characterized in that a suspension comprising di- or polyols is used.

18. A process according to claim 16 or 17, characterized in that the suspension is produced in two steps, a first step of initially producing a mixture of first silane, alcohol and acid, into which mixture the particles are stirred, and a second step of adding to this first component a further silane and/or a diol or polyol as a second component before the suspension is heated.

19. A process according to claim 18, characterized in that the suspension is produced in two steps, a first step of initially producing a mixture of GLYEO, alcohol and acid, into which mixture the particles are stirred, and a second step of this first component having added to it AMEO and/or bisphenol A as a second component before the suspension is heated.
20. A process according to at least one of claims 16 to 19, characterized in that the heating takes 1 second to 2 hours at temperatures from 50 to 650°C.
21. A process according to claim 14 or 15, characterized in that the suspension is solidified by treatment with UV rays when the sol is based on methacryloyloxypropyltrimethoxysilane (MEMO).
22. A process according to at least one of claims 14 to 21, characterized in that an interlayer containing an adhesive, an adhesion promoter, a dye, printing inks or a binder is applied.
23. A process according to at least one of claims 14 to 22, characterized in that the individual layers are applied to the base material in a roll-to-roll process.